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ABSTRACT

This digest documents the experiences of faculty, administrators, and staff at several colleges as they addressed a broad range of instructional technology issues. Included in the digest are several approaches suggested by instructors and staff affiliated with various community college technology programs. Plans for implementation, development, and integration of instructional technology are put forward, and Project SYNERGY, case study of success, is reviewed. New problems that have surfaced are discussed, including inadequate faculty compensation and competition for community college students and their dollars. The article predicts that other challenges will continue to arise, and that efforts to find innovative solutions will become increasingly necessary. These challenges will force community colleges to revisit their missions, particularly in response to issues of access and service. (AS)

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Successfully Integrating Technology

ERIC Digest

Steven Leider

ERIC Clearinghouse for Community Colleges

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Digest

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Successfully Integrating Technology

by Steven Leider

Keeping pace with new technologies and integrating them into existing institutional structures is only one of many pressing problems facing community college leaders today. However, recent attempts to enhance learner-centered education through technology have resulted in successful holistic approaches. This Digest, redacted from a recent *New Directions for Community Colleges* issue edited by Kamala Anandam, documents the experiences of faculty, administrators, and staff at several colleges as they addressed a broad range of instructional technology issues.

From the Ground Up

Stephen C. Ehrmann (1998) views technology in higher education as being akin to a four-level tower in which each level is progressively more sophisticated than the one below it. The basement contains traditional technologies (textbooks, audiovisual materials) and the infrastructure for their use (libraries, labs, etc.). These basic elements support the four traditional pedagogies on the first floor: *directed instruction* (lecture hall and textbooks), *learning by doing* (laboratories, typewriters, libraries), *real-time conversations* (seminars, office hours), and *time-delayed exchange* (homework). The second floor houses enhancements to these practices that require students to use instructional technologies. Finally, the third floor represents large-scale structures supporting new educational concepts, campus-based education and distributed learning.

Moran and Payne (1998) suggest that successful integration of technology into community colleges hinges on the willingness of faculty to move beyond the basement and first-floor technologies with which they are most familiar and into the upper levels that incorporate information technology. The writers recount Kirkwood Community College's (Cedar Rapids, Iowa) successful Instructional Technology Teaching/Learning Initiative in which faculty led the integration of technology into the campus.

With improving student learning as their primary goal, faculty members were carefully trained in the use of a variety of hardware and software programs. The initiative resulted in greater faculty integration of technology into their planning, teaching, and student evaluation routines. Recent activities include formation of an institute for studying the impact of technology on literature and development of a software program that allows downloading of student grades from instructor records into the student record system.

Additionally, faculty from the developmental education department mentor faculty in other departments in designing technology-based and technology-enhanced curricula. Results of these initiatives include a sequence of courses designed for specific vocational and college preparatory areas. Moran and Payne (1998) make it clear that when faculty assume a leadership role in integrating instructional technology, rather than administrators dictating that implementation, innovations that enhance student learning are the result.

Planning for Technology

Community colleges now operate in an age of diminishing budgets and resources as well as demands to expand their missions. Ehrmann (1998) identifies five policy issues with which all community college leaders need to be concerned when investing in instructional technology. Taken together, these concerns require decision makers to examine the underlying values that will affect their choices for where to invest scarce institutional dollars in order to yield the best return.

Any successful attempt at integrating technology into existing institutional structures must begin with an evaluation of the current status of the college and a plan for improvement. Gellman-Danley and Teague (1998) offer a 10-step guide to integrating technology throughout the community college. Based on their own experience at Monroe Community College (New York) that saw technological consolidation throughout both the academic and administrative sectors, the authors articulate the steps required to form an institution able to serve faculty, staff, and students more effectively and efficiently.

The cost of integrating instructional technology is another common concern. Bleed (1998) argues persuasively for new investment strategies that concentrate technology dollars in the top 10 to 25 courses that enroll upwards of 25% of students at most community colleges. Bleed suggests concentrating technology investments in the introductory English, math, psychology, accounting, biology, fitness, and speech courses. He argues that improving access to these classes through technology will increase enrollments and potentially reduce operating costs.

Planning for technological innovation can be especially difficult for community college administrators during uncertain times, but it also provides them with opportunities for reinventing the institution. Neff (1998) details the creation of a "parallel college" at Sinclair Community College (Ohio) that seeks to, first, correct the mismatch between curriculum and modern technology and second, update current administrative operations systems with modern and efficient ones. Both objectives are part of that institution's efforts to produce more student-centered learning on campus.

Case Study of Success

When efforts to integrate technology into learner-centered teaching are successful, the results can be startling, as was the case with Project SYNERGY at Miami-Dade Community College in Florida. The project resulted in the creation and implementation of software designed to test, evaluate, and teach underprepared students at their own pace.

An important initial phase of the project was the creation of a software "platform" that integrated a collection of faculty evaluated and selected educational software programs. These existing programs in turn were integrated into a collection of diagnostic components. This new software platform was dubbed the Project SYNERGY Integrator (PSI). Using either LAN (local area network) or WAN (wide area network) computer technology, the PSI was designed to allow instructors to easily and effectively evaluate and track the competence of underprepared students in a wide range of basic skills.

The evaluation and selection of software was followed by the creation of questions by faculty that, when answered by students, would measure individual students' levels of preparedness in reading, writing, math, ESL, study skills, critical thinking, or other targeted areas. The questions, contained in a database called BANQUE, were integrated into the PSI, thereby allowing instructors to easily produce either topical or diagnostic tests custom designed for individual students. When faculty select questions for a particular test, specific learning objectives can be matched with the content of the topic covered.

Additional features incorporated into the PSI include e-mail, generation of reports for time-on-task, and access to software by individual students. These features allow the student and instructor to interact at the convenience of both parties and eliminate tedious grading and tracking functions. The system even provides students with computer games as rewards for effort and achievement.

New Challenges

Successes such as those experienced by Project SYNERGY can lead to additional, unexpected challenges. For instance, faculty typically are not compensated for the extra work they perform to enhance their instruction with technological innovations. Certainly they are entitled to fair compensation for these efforts although there are no easy answers (Allison & Scott, 1998). The obligations of both faculty and institutions need to be defined in this new environment.

New competitors for community college students and their dollars pose another challenge. Doucette (1998) foresees the day when, in search of new markets, conglomerates such as Disney or Microsoft begin to compete for a sizable portion of students now taught by community colleges. He believes the challenge to community colleges will then be to once again discover new ways to "provide learning support services to help students learn, regardless of where they get their information" (p. 85).

Conclusion

No doubt other, unpredicted challenges will continue to arise as integration of technology into community colleges progresses. Efforts to find new and innovative solutions will become a common occurrence among those responsible for making technology decisions at the faculty, administrative, and staff levels. These challenges will force community colleges to revisit their missions, particularly in response to issues of access and service.

References

This Digest is drawn from "Integrating Technology on Campus: Human Sensibilities and Technical Possibilities," *New Directions for Community Colleges*, Number 101, edited by Kamala Anandam, published in Spring, 1998. The cited articles include: "Faculty Compensation and Obligation: The Necessity of a New Approach Triggered by Technology Integration,'" by Robert D. Allison and David C. Scott; "Project SYNERGY: An Enduring Collaboration for a Common Cause," by Kamala Anandam; "Learner-Centered Strategy for Investments in Technology in Community Colleges," by Ronald D. Bleed; "What Are Community Colleges to Do When Disney and Microsoft Enter the Higher Education and Training Market?" by Don Doucette; "Using Technology to Transform the College," by Stephen C. Ehrmann; "Navigating the Organizational Maze: Reengineering to Advance the Technology Agenda," by Barbara Gellman-Danley and Robert G. Teague; "Humanizing the Integration of Technology," by Terry J. Moran and Michele Payne; and "Technology as a Catalyst for Reinventing an Institution," by Kathryn J. Neff.

Additional Resources

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Dillon, C. L. and Cintron R. (1998). "Building a Working Policy for Distance Education," *New Directions for Community Colleges*, 25 *(3)*. Published in association with Jossey-Bass, Inc. Publishers.

Distance Education in the Community College. (Fall 1998). *Topical Bibliography*.

Educational Technology in the Community College. (Summer 1998). *Topical Bibliography*.

Keup, J. R. (1998). "Using Technology in Remedial Education." *ERIC Digest*.

To request the *New Directions for Community Colleges* issue, contact Jossey-Bass, Inc. Publishers at (888) 378-2537. All other publications are available free of charge from the ERIC Clearinghouse.

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